

In the Claims:

Please amend the Claims as follows:

1. (Canceled)

2. (Currently Amended) A content addressable memory ("CAM") system comprising a plurality of segments arranged in an array, wherein each of the plurality of segments includes a plurality of CAM cells. ~~A system as defined in Claim 1 wherein~~ each of the plurality of CAM cells comprises a wordline, a matchline and a sinkline, the wordline being shared by all of the cells in the same row, the matchline and sinkline being shared by all of the cells in the same segment.

3. (Currently Amended) A system as defined in Claim ~~1~~ 2, further comprising gap logic between any two segments to propagate the matchline and sinkline information from segment to segment.

4. (Currently Amended) A system as defined in Claim ~~1~~ 2 wherein searching is done in a pipeline process, and when the first segment of the first row is completed in search, the search is continued to proceed to the second segment of the first row, while at the same time, a new search is started to proceed on the first segment of the second row.

5. (Original) A system as defined in Claim 4 wherein the search procedure on any row will not be continued when a mismatch is detected in any segment of that row.

6. (Canceled)

7. (Currently Amended) A method of searching within a content addressable memory ("CAM") system, the method comprising:

providing an input word to the CAM system;

comparing a portion of the input word in a segment of the CAM system; and

propagating a mismatch to obviate the need for comparison in other segments of the CAM system; ~~A method as defined in Claim 6, further comprising:~~

comparing the input word with data from a plurality of wordlines, each wordline being shared by all of the cells in the same row;

propagating a match or mismatch on a matchline, each matchline being shared by all of the cells in the same segment; and

grounding through a sinkline when a mismatch is found in a segment, each sinkline being shared by all of the cells in the same segment.

8. (Currently Amended) A method as defined in Claim ~~6~~ 7, further comprising propagating the matchline and sinkline information from segment to segment through gap logic between each segment and the next segment.

9. (Currently Amended) A method as defined in Claim-~~6~~ 7, further comprising:  
searching in a pipeline process;  
continuing a first search into the second segment of the first row when the first segment of the first row is completed; and  
starting a second search to proceed on the first segment of the second row at the same time that the first search is continued into the second segment of the first row.

10. (Original) A method as defined in Claim 9 wherein the search procedure on any row will not be continued when a mismatch is detected in any segment of that row.

11. (Canceled)

12. (Currently Amended) A content addressable memory ("CAM") device comprising a plurality of segments arranged in an array, wherein each of the plurality of segments includes a plurality of CAM cells, ~~A device as defined in Claim 11 wherein~~ each of the plurality CAM cells comprises a wordline, a matchline and a sinkline, the wordline being shared by all of the cells in the same row, the matchline and sinkline being shared by all of the cells in the same segment.

13. (Currently Amended) A device as defined in Claim-~~11~~ 12, further comprising gap logic between any two segments to propagate the matchline and sinkline information from segment to segment.

14. (Currently Amended) A device as defined in Claim ~~14~~ 12 wherein searching is done in a pipeline process, and when the first segment of the first row is completed in search, the search is continued to proceed to the second segment of the first row, while at the same time, a new search is started to proceed on the first segment of the second row.

15. (Original) A device as defined in Claim 14 wherein the search procedure on any row will not be continued when a mismatch is detected in any segment of that row.

16. (Canceled)

17. (Currently Amended) A content addressable memory ("CAM") device comprising:

searching means for searching within the CAM device;

receiving means for providing an input word to the CAM device;

comparing means for comparing a portion of the input word in a segment of the CAM device; and

propagating means for propagating a mismatch to obviate the need for comparison in other segments of the CAM device; ~~A device as defined in Claim 16, further comprising:~~

a plurality of comparing means for comparing the input word with data from a plurality of wordlines, each wordline being shared by all of the cells in the same row;

matching means for propagating a match or mismatch on a matchline, each matchline being shared by all of the cells in the same segment; and

grounding means for grounding through a sinkline when a mismatch is found in a segment, each sinkline being shared by all of the cells in the same segment.

18. (Currently Amended) A device as defined in Claim ~~46~~ 17, further comprising:

gap logic means between each segment for propagating the matchline and sinkline information from segment to segment.

19. (Currently Amended) A device as defined in Claim ~~46~~ 17, further comprising:

pipeline means for searching in a pipeline process;

continuation means for continuing a first search into the second segment of the first row when the first segment of the first row is completed; and

synchronization means for starting a second search to proceed on the first segment of the second row at the same time that the first search is continued into the second segment of the first row.

20. (Original) A device as defined in Claim 19, further comprising:

mismatching means wherein the search procedure on any row will not be continued when a mismatch is detected in any segment of that row.

21. (New) A system as defined in Claim 2 wherein each of the plurality of segments is substantially the same size.

22. (New) A method as defined in Claim 7 wherein the segment is substantially the same size as each of the other segments.

23. (New) A device as defined in Claim 12 wherein each of the plurality of segments is substantially the same size.

24. (New) A device as defined in Claim 17 wherein the segment is substantially the same size as each of the other segments.